Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently Amended) A method for reading code symbols by deinterleaving to decode ~~a~~ an encoder packet in a receiver for a mobile communication system supporting interleaving, wherein an interleaved encoder packet has $(2^m * J + R)$ bits, a bit shift value m, an up-limit value J and a remainder R, wherein the symbol codes are written in the format of a $2^m * J$ matrix and R is the number of remaining bits in the last column J, the method comprising the steps of:

generating an interim address by bit reversal order (BRO) operation on an index of a code symbol;

calculating an address compensation factor for compensating the interim address in consideration of a column formed with the remainder R; and

generating a read address by adding the interim address ~~to~~ and the address compensation factor for the code symbol, and

reading the code symbol written in the generated read address.

2. (Currently Amended) The method of claim 1, wherein the interim address generation step comprises the step of generating the interim address by excluding the ~~(J +1)th~~ last column when the number of the code symbols of the ~~(J + 1)~~ last column is less than a half of 2^m code symbols, and generating the interim address by including the ~~(J + 1)th~~ last column when the number of the code symbols of the ~~(J+1)th~~ last column is more than or equal to a half of 2^m code symbols.

3. (Currently Amended) The method of claim 2, wherein the address compensation factor calculation step comprises the step of increasing the address compensation factor by one each time a code symbol appears in the ~~(J+1)th~~ last column when the ~~(J+1)th~~ last column ~~is~~ has less than a half of 2^m code symbols, and

decreasing the address compensation factor by one each time a code symbol is excluded from the ~~(J+1)th~~ last column when the ~~(J+1)th~~ last column ~~is~~ has more than or equal to a half of 2^m code symbols.

4. (Original) The method of claim 1, wherein if a size of the subblock is 408, the read address is generated in accordance with the equation

$$A_k = 3 \cdot BRO_7(k \bmod 128) + \lfloor k/128 \rfloor + \left\lfloor \frac{BRO_7(k \bmod 128)+3}{4} \right\rfloor - \left\lfloor \frac{BRO_7(k \bmod 128)+3}{16} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

5. (Original) The method of claim 1, wherein if a size of the subblock is 792, the read address is generated in accordance with the equation

$$A_k = 3 \cdot BRO_8(k \bmod 256) + \lfloor k/256 \rfloor + \left\lfloor \frac{BRO_8(k \bmod 256)+7}{8} \right\rfloor - \left\lfloor \frac{BRO_8(k \bmod 256)+7}{32} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

6. (Original) The method of claim 1, wherein if a size of the subblock is 1560, the read address is generated in accordance with the equation

$$A_k = 3 \cdot BRO_9(k \bmod 512) + \lfloor k/512 \rfloor + \left\lfloor \frac{BRO_9(k \bmod 512)+15}{16} \right\rfloor - \left\lfloor \frac{BRO_9(k \bmod 512)+15}{64} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

7. (Original) The method of claim 1, wherein if a size of the subblock is 3096, the read address is generated in accordance with the equation

$$A_k = 3 \cdot BRO_{10}(k \bmod 1024) + \lfloor k/1024 \rfloor + \left\lfloor \frac{BRO_{10}(k \bmod 1024) + 31}{32} \right\rfloor - \left\lfloor \frac{BRO_{10}(k \bmod 1024) + 31}{128} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

8. (Original) The method of claim 1, wherein if a size of the subblock is 6168, the read address is generated in accordance with the equation

$$A_k = 3 \cdot BRO_{11}(k \bmod 2048) + \lfloor k/2048 \rfloor + \left\lfloor \frac{BRO_{11}(k \bmod 2048) + 63}{64} \right\rfloor - \left\lfloor \frac{BRO_{11}(k \bmod 2048) + 63}{256} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

9. (Original) The method of claim 1, wherein if a size of the subblock is 12312, the read address is generated in accordance with the equation

$$A_k = 3 \cdot BRO_{12}(k \bmod 4096) + \lfloor k/4096 \rfloor + \left\lfloor \frac{BRO_{12}(k \bmod 4096) + 127}{128} \right\rfloor - \left\lfloor \frac{BRO_{12}(k \bmod 4096) + 127}{512} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

10. (Original) The method of claim 1, wherein if a size of the subblock is 2328, the read address is generated in accordance with the equation

$$A_k = 2 \cdot BRO_{10}(k \bmod 2^{10}) + \left\lfloor \frac{k}{2^{10}} \right\rfloor + \left\lfloor \frac{BRO_{10}(k \bmod 2^{10}) + 3}{4} \right\rfloor + \left\lfloor \frac{BRO_{10}(k \bmod 2^{10}) + 29}{32} \right\rfloor - \left\lfloor \frac{BRO_{10}(k \bmod 2^{10}) + 29}{128} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

11. (Original) The method of claim 1, wherein if a size of the subblock is 3864, the read address is generated in accordance with the equation

$$A_k = 2 \cdot BRO_{11}(k \bmod 2^{11}) + \left\lfloor \frac{k}{2^{11}} \right\rfloor - \left\lfloor \frac{BRO_{11}(k \bmod 2^{11})}{8} \right\rfloor + \left\lfloor \frac{BRO_{11}(k \bmod 2^{11}) + 56}{64} \right\rfloor - \left\lfloor \frac{BRO_{11}(k \bmod 2^{11}) + 56}{256} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

12. (Original) The method of claim 1, wherein if a size of the subblock is 4632, the read address is generated in accordance with the equation

$$A_k = 2 \cdot BRO_{11}(k \bmod 2^{11}) + \left\lfloor \frac{k}{2^{11}} \right\rfloor + \left\lfloor \frac{BRO_{11}(k \bmod 2^{11}) + 3}{4} \right\rfloor + \left\lfloor \frac{BRO_{11}(k \bmod 2^{11}) + 61}{64} \right\rfloor - \left\lfloor \frac{BRO_{11}(k \bmod 2^{11}) + 61}{256} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

13. (Original) The method of claim 1, wherein if a size of the subblock is 9240, the read address is generated in accordance with the equation

$$A_k = 2 \cdot BRO_{12}(k \bmod 2^{12}) + \left\lfloor \frac{k}{2^{12}} \right\rfloor + \left\lfloor \frac{BRO_{12}(k \bmod 2^{12}) + 3}{4} \right\rfloor + \left\lfloor \frac{BRO_{12}(k \bmod 2^{12}) + 125}{128} \right\rfloor - \left\lfloor \frac{BRO_{12}(k \bmod 2^{12}) + 125}{512} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

14. (Original) The method of claim 1, wherein if a size of the subblock is 15384, the read address is generated in accordance with the equation

$$A_k = 2 \cdot BRO_{13}(k \bmod 2^{13}) + \left\lfloor \frac{k}{2^{13}} \right\rfloor - \left\lfloor \frac{BRO_{13}(k \bmod 2^{13})}{8} \right\rfloor + \left\lfloor \frac{BRO_{13}(k \bmod 2^{13}) + 248}{256} \right\rfloor - \left\lfloor \frac{BRO_{13}(k \bmod 2^{13}) + 248}{1024} \right\rfloor$$

where A_k is the read address, k is an index of the code symbol, BRO means a BRO operation, mod means a modulo operation, and $\lfloor \cdot \rfloor$ means a maximum integer not exceeding an input "·".

15. (Currently Amended) The method of claim 1, wherein the address compensation factor calculation step comprises the step of calculating an address compensation factor by the following equation when the ~~(J+1)th~~ last column ~~is~~ <u>has</u> less than a half ~~or more~~ of 2^m code symbols;

$$C_d^+(r_k) = \left\lfloor \frac{r_k + d - (r^+ + 1)}{d} \right\rfloor$$

where "d" is a value determined by dividing the total number of rows by the number of code symbols to be inserted, "r^+" is an index of a row where a first inserted code symbol is located among the remaining code symbols inserted in the ~~(J+1)th~~ last column, and "+" in a address compensation factor C_d^+ indicates that a code symbol is "inserted" in the ~~(J+1)th~~ last column.

16. (Currently Amended) The method of claim 1, wherein the address compensation factor calculation step comprises the step of calculating an address compensation factor by the following equation when the ~~(J+1)th~~ last column ~~is~~ has more than or equal to a half of 2^m code symbols;

$$C_d^-(r_k) = -\left\lfloor \frac{r_k + d - (r^- + 1)}{d} \right\rfloor$$

where "d" is a value determined by dividing the total number of rows by the number of code symbols to be excluded, "r^-" is an index of a row where a first excluded code symbol is located, and "-" in C_d^- indicates that a code symbol is "excluded" from the ~~(J+1)th~~ last column.

17-19. (Cancelled)

20-32. (Withdrawn)

33. (New) The method of claim 1 wherein, when the number of code symbols of the last column is less than half of 2^m code symbols, the step of generating the interim address further comprises:

performing BRO operation on a column index of the code symbol;

multiplying the BRO operated column index by the integer determined by (J-1); and

adding a column index of the code symbol to the product determined in the multiplying step; wherein

the column index of the code symbol is a quotient generated by dividing the code symbol index k into 2^m.

34. (New) The method of claim 1 wherein, when the number of code symbols of the last column is equal to or more than half of 2^m code symbols, the step of generating the interim address further comprises:

performing BRO operation on a column index of the code symbol;

multiplying the BRO operated column index by the integer represented by J; and

adding a column index of the code symbol to the product determined in the multiplying step; wherein

the column index of the code symbol is a quotient generated by dividing the code symbol index k into 2^m.